

IN THE CLAIMS:

The current claims follow. For claims not marked as amended in this response, any difference in the claims below and the previous state of the claims is unintentional and in the nature of a typographical error.

1. (Currently Amended) A method for smoothing a mesh of a model, comprising:
 - loading, in a data processing system, a model having a plurality of interconnected nodes forming a mesh;
 - receiving a selection of a node of the model;
 - determining a nodal valency of the selected node;
 - determining an element connectivity pattern of the selected node;
 - performing a smoothing operation on the selected node according to the nodal valency and the element connectivity pattern to produce a smoothed mesh of the model at the selected node; and
 - storing the model.
2. (Original) The method of claim 1, wherein
 - if the element connectivity pattern is a triangle, then incenter-based smoothing is performed;
 - if the element connectivity pattern is a quad-only mesh, then isoparametric-Laplace smoothing is performed;
 - if the element connectivity pattern is a mapped region, then equipotential smoothing is performed; and
 - if the element connectivity pattern is a free-mixed mesh, then combined incenter and laplacian smoothing is performed.

3. (Original) The method of claim 1, wherein the smoothing of the node is performed using

$$P_i' = \sum_{n=1}^N F_n(C, V) * \Omega_n(C, V)$$

and wherein i is the node to be smoothed, i is connected to N elements, P_i' is the new position of node i , F_n is the variational weight factor for n -th element Ω_n is the positional function for n -th element, C denotes the connectivity pattern of the node, and V indicates the valency of the node.

4. (Original) The method of claim 1, further comprising performing an interior angle screening process.

5. (Cancelled)

6. (Currently Amended) A data processing system ~~having at least~~ comprising:

a processor; and

an accessible memory, ~~comprising:~~ the data processing system configured to perform the steps of

~~means for~~ loading a graphic model having a plurality of interconnected nodes forming a mesh;

~~means for~~ receiving a selection of a node of the graphic model;

~~means for~~ determining a nodal valency of the selected node;

~~means for~~ determining an element connectivity pattern of the selected node;

~~means for~~ performing a smoothing operation on the selected node according to the nodal valency and the element connectivity pattern to produce a smoothed mesh of the model at the selected node; and
~~means for~~ storing the model.

7. (Original) The data processing system of claim 6, wherein
- if the element connectivity pattern is a triangle, then incenter-based smoothing is performed;
 - if the element connectivity pattern is a quad-only mesh, then isoparametric-Laplace smoothing is performed;
 - if the element connectivity pattern is a mapped region, then equipotential smoothing is performed; and
 - if the element connectivity pattern is a free-mixed mesh, then combined incenter and laplacian smoothing is performed.
8. (Original) The data processing system of claim 6, wherein the smoothing of the node is performed using

$$P_i' = \sum_{n=1}^N F_n(C, V) * \Omega_n(C, V)$$

and wherein i is the node to be smoothed, i is connected to N elements, P_i' is the new position of node i , F_n is the variational weight factor for n -th element Ω_n is the positional function for n -th element, C denotes the connectivity pattern of the node, and V indicates the valency of the node.

9. (Currently Amended) The data processing system of claim 6, further ~~comprising means~~
for further configured to perform the step of performing an interior angle
screening process.

10. (Cancelled)

11. (Currently Amended) A ~~computer program product tangibly embodied in a non-~~
transitory machine-readable medium encoded with executable instructions that,
when executed, cause a data processing system to, ~~comprising:~~
~~instructions for loading, in a data processing system, load~~ a graphic model having
a plurality of interconnected nodes forming a mesh;
~~instructions for receiving~~ receive a selection of a node of the graphic model;
~~instructions for determining~~ determine a nodal valency of the selected node;
~~instructions for determining~~ determine an element connectivity pattern of the
selected node;
~~instructions for performing~~ perform a smoothing operation on the selected node
according to the nodal valency and the element connectivity pattern to
produce a smoothed mesh of the model at the selected node; and
~~instructions for storing~~ store the model.

12. (Currently Amended) The ~~computer program product~~ machine-readable medium of claim 11, wherein
- if the element connectivity pattern is a triangle, then incenter-based smoothing is performed;
 - if the element connectivity pattern is a quad-only mesh, then isoparametric-Laplace smoothing is performed;
 - if the element connectivity pattern is a mapped region, then equipotential smoothing is performed; and
 - if the element connectivity pattern is a free-mixed mesh, then combined incenter and laplacian smoothing is performed.

13. (Currently Amended) The ~~computer program product~~ machine-readable medium of claim 11, wherein the smoothing of the node is performed according using

$$P_i' = \sum_{n=1}^N F_n(C,V) * \Omega_n(C,V)$$

and wherein i is the node to be smoothed, i is connected to N elements, P_i' is the new position of node i, F_n is the variational weight factor for n-th element, Ω_n is the positional function for n-th element, C denotes the connectivity pattern of the node, and V indicates the valency of the node.

- 14.(Currently Amended) The ~~computer program product~~ machine-readable medium of claim 11, further comprising instructions for performing an interior angle screening process.

15. (Cancelled)